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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,824	05/10/2002	Thomas Wixforth	10191/2135	9925

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EXAMINER

NGUYEN, HOANG V

ART UNIT PAPER NUMBER

2821

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,824

Applicant(s)

WIXFORTH ET AL.

Examiner

Hoang V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3&7. 6) ☐ Other: ____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dicken et al (GB 2 207 556 A) in view of Li et al ("Broadband Coplanar Waveguide-Coplanar Strip-Fed Spiral Antenna", Electronics Letters, 5 January 1995, Vol. 31, No. 1).

Regarding claim 11, Dicken (Figures 1 and 2) discloses a spiral antenna 2 comprising four approximately parallel electrically conducting spiral arms A, B, C and D; wherein the respective inner spiral arm ends E-G of each of the spiral arms are connected for at least one of supplying and receiving a signal. Dicken fails to specifically teach a common coplanar conductor connecting the respective inner spiral arm ends of each the spiral arms. Li (page 4, Figure 1a and 2) discloses a coplanar strip-fed spiral antenna having the configuration wherein a common coplanar conductor connecting respective inner spiral arms of each of the four spiral arms. It would have been obvious to one of ordinary skill in the art to employ the Dicken antenna with the common coplanar feed configuration, as taught by Li, doing so would significantly reduce in feed size thus being more suitable for microwave and millimeter wave circuit application.

Regarding claim 12, as applied to claim 11, Li (Figure 2) shows that the coplanar conductor includes an inner conductor and at least one reference potential surface, and the inner

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conductor and the at least one reference potential surface each are connected to two of the four inner spiral arm ends.

Regarding claim 13, as applied to claim 11, Figure 1a of Li shows that the coplanar conductor is arranged perpendicular to a plane of the spiral antenna.

Regarding claims 14 and 15, as applied to claim 11, it would have been obvious to one of ordinary skill in the art to arbitrary select the carrier material for the spiral antenna and coplanar conductor in order to satisfy various design criteria.

Regarding claim 16, as applied to claim 11, Figure 2 of Li shows that the coplanar conductor is formed as a taper at least in part.

Regarding claim 17, as applied to claim 11, Li (col 1, second paragraph) teaches that Archimedean-spiral type and logarithmic-spiral type are well-known forms of spiral antenna.

Regarding claims 18 and 19, as applied to claim 11, Dicken teaches that the four arm spiral antenna can be supplied with a symmetrical electric field distribution or with an asymmetrical electric field distribution in order to yield an omni-directional transmission characteristic or a directional transmission characteristic, respectively.

Regarding claim 20, the antenna structure of Dicken and Li disclose a spiral antenna comprising four approximately parallel electrically conducting spiral arms; and a common coplanar conductor connecting the respective inner spiral arm ends of each of the spiral arms for at least one of supplying and receiving a signal. It would have been obvious to one of ordinary skill in the art to place the spiral antenna of Dicken and Li on the body of a vehicle for omni-directional and directional transmission.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patents 6,130,652 and 5,936,595 disclose four-arm spiral antennas.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V Nguyen whose telephone number is (703) 306-3444.

The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (703) 308-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

5. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Hoang V Nguyen
Primary Examiner
June 9, 2003